

IN THE CLAIMS:

Please amend the claims as shown below:

1. (Currently Amended) A wavelength tunable laser comprising
a laser diode, and
a wavelength selective external cavity ~~optically coupled to the laser diode~~, the
external cavity including a resonator formed of electro-optic material and having an adjustable
refractive index induced tunable resonance wavelength and formed from electro-optic material,
and first and second waveguides optically coupled to the resonator along first and second
coupling regions wherein light traveling through the waveguides having a wavelength matching
a tuned resonance wavelength of the resonator is coupled into the resonator through evanescent
wave coupling, the first and second waveguides being parallelly disposed in a lateral direction
adjacent and extending beyond the first and second coupling regions, the first waveguide having
a first end optically coupled to the laser diode, and the second waveguide having one end
optically coupled to a reflector ~~optically coupled to the second waveguide.~~
2. (Currently Amended) The tunable laser of claim 1 wherein the first and second
waveguides are vertically coupled to the resonator such that evanescent wave coupling between
the resonator and first and second waveguides is generally orthogonally directed relative to a
plane generally defined by a top surface of the resonator and planes generally defined by a top
surface of each of the first and second waveguides that extend in the lateral direction and
generally parallel to the resonator plane. further comprising a separation layer interposing the
first and second waveguides and a core layer of the resonator wherein the separation layer
vertically couples the first and second waveguides to the resonator.

3. (Original) The tunable laser of claim 2 wherein the first and second waveguides and the resonator are formed on a single substrate comprising a plurality of layers.

4. (Currently Amended) The tunable laser of claim 3 wherein the plurality of layers includes ~~the~~ a separation layer interposing the first and second waveguides and the a resonator core layer ~~of the resonator- and a waveguide layer.~~

5. (Currently Amended) The tunable laser of claim 4 wherein the first ~~of~~ and second waveguides are formed in ~~the same~~ a single layer.

6. (Original) The tunable laser of claim 4 wherein the first and second waveguides are formed in different layers.

7. (Currently Amended) The tunable laser of claim 1 wherein the first and second waveguides are horizontally coupled to the resonator such that evanescent wave coupling between the resonator and first and second waveguides is directed in a generally orthogonally direction between the first and second waveguides. ~~coupling gaps interpose the resonator and the first and second waveguides and the coupling gaps horizontally couple the first and second waveguides to the resonator.~~

8. (Currently Amended) The tunable laser of claim ~~5~~ 1 wherein ~~coupling gaps interpose the~~ the resonator and the first and second waveguides are spaced apart a predetermined

distance along the first and second coupling regions forming evanescent wave coupling gaps
there between.

9. (Currently Amended) The tunable laser of claim 1 wherein the resonator comprises a plurality of resonators wherein adjacent resonators are spaced apart a predetermined distance to cause a constructive interference effect among the resonators the plurality of resonators.

10. (Currently Amended) The tunable laser of claim 1 further comprising a coupling lens interposing an end facet of the laser diode and an end facet of the first end of the first waveguide.

11. (Currently Amended) The tunable laser of claim 1 wherein the laser diode is butt-joint coupled to an end facet of the first end of the first waveguide.

12. (Original) The tunable laser of claim 1 wherein the laser diode and external cavity are formed on a single substrate.

13. (Currently Amended) The tunable laser of claim 1 wherein the reflector comprises a mirror positioned adjacent an end facet on the one end of the second waveguide coupled to the reflector.

14. (Currently Amended) The tunable laser of claim 13 further comprising a collimated lens interposing the mirror and the one end of the second waveguide coupled to the reflector.

15. (Currently Amended) The tunable laser of claim 1 wherein the reflector comprises a reflection coating applied to an end facet on the one end of the second waveguide, wherein the reflection coating has a reflectivity of about 100% within the tunable laser device working wavelength range.

16. (Currently Amended) The tunable laser of claim 12 further comprising an electro-absorption modulator formed on the substrate with the laser diode and external cavity and positioned adjacent an output end facet of the laser diode.

17. (Original) The tunable laser of claim 16 further comprising an external gain section formed adjacent the electro-absorption modulator.

18. (Original) The tunable laser of claim 1 wherein at least one of the first and second waveguides includes an amplifier.

19. (Original) The tunable laser of claim 1 wherein the laser diode comprises a multi-layer semiconductor wafer structure including first and second end facets.

20. (Original) The tunable laser of claim 19 wherein one of the first and second end facets is coated with an anti-reflection coating.

21. (Original) The tunable laser of claim 1 further comprising first and second electrodes formed on opposite sides of the resonator.

22. (Original) The tunable laser of claim 1 wherein each of the first and second waveguides has two ends that are thicker than a central portion thereof.

Please cancel claims 23-19 without prejudice.

23. -- 29. (Cancelled)